Summary of Cancer Incidence and Mortality for Zip Code 29574 (Mullins, SC)

Cancer Incidence in Zip Code 29574

The first step in the analysis of cancer data for zip code 29574 was to look at the number of new cancer cases diagnosed in the zip code and compare this to the number of cancer cases expected (see Table 1). This first step determines if there is anything unusual with cancer patterns in the area. The number of "expected" cancer cases is calculated by using South Carolina cancer rates and applying them to the population of the zip code.

Table 1 shows what types of cancer occurred in zip code 29574 from 1996-1999, and how many cancer cases were expected. Overall, there were more cases of cancer than expected. A total of 278 new cases of cancer occurred in the zip code, while 249 cases were expected. However, the difference between the observed number and expected number was not statistically significant. The most common types of cancer were prostate, lung, colorectal, and female breast cancers. These four types of cancer are also the most common cancers occurring across all of South Carolina.

The analysis revealed that the number of **prostate cancer cases** that occurred was significantly higher than expected. A total of 56 prostate cancers were diagnosed while 37 were expected.

The causes of prostate cancer are not well known, however, researchers have determined a few risk factors that increase a man's chance of developing this disease. These risk factors include increasing age, a diet high in fat, a lack of physical activity, and family history of the disease. Also, prostate cancer occurs almost 70% more often in African-Americans as it does in white American men[1].

Cancer Deaths in Zip Code 29574

To assess cancer deaths in this zip code, cancer mortality data from 1996-2000 were used. This is the most current death data available. The same process used to analyze new cancer cases was also used to analyze cancer deaths. Table 2 shows the number of cancer deaths that occurred and the number expected in the zip code. A total of 173 cancer deaths occurred in this zip code, while 148 deaths were expected. Therefore, significantly more cancer deaths occurred than expected. However, this excess is due in large part to the excess number of **lung cancer deaths** that occurred in the zip code.

A total of 59 lung cancer deaths occurred while 43 were expected. By far, the most important risk factor for lung cancer is smoking. More than 80% of lung cancers are thought to result from smoking. There are other factors that can increase a person’s risk of developing lung cancer. Exposure to second-hand smoke, asbestos, and radon increase risk. Also, exposure to cancer-causing agents in the workplace, such as uranium, arsenic, vinyl chloride, nickel chromates, coal products, fuels, and diesel exhaust can increase lung cancer risk. In addition, recurring inflammation, such as from tuberculosis or pneumonia, can leave scarring on the lungs, increasing the risk of developing lung cancer.

Conclusions

To summarize, more cancer cases occurred in zip code 29574 than expected; however, this difference was not statistically significant. The number of prostate cancer cases that occurred in the zip code was significantly higher than expected. Statistics show that Marion County ranks 2nd in the state for prostate cancer incidence, following Orangeburg County. Therefore, high prostate cancer incidence is a trend seen not only in zip code 29574, but also across all of Marion County.

Finally, there was a significant excess of cancer deaths in zip code 29574. This excess is due largely to the excess number of lung cancer deaths. Research has shown that the majority of lung cancers are caused by "lifestyle" risk factors, i.e. smoking.

In order for a true cancer cluster to exist, the number of cancers occurring must be more than would be expected by chance. Along with statistical testing, there are several other criteria that determine whether a true cancer cluster exists. First, a cancer cluster would more likely involve rarer types of cancer, like brain, rather than more common cancers, like lung or prostate. Also, a cancer

cluster would occur with one specific type of cancer rather than having excesses in several different types of cancer.

Taking all these criteria into consideration, there is no evidence of cancer clustering or of cancers resulting from environmental exposures in zip code 29574.

For questions about this report, please contact Laura Sanders at the SC Central Cancer Registry.

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References

1. American Cancer Society, 2001. www.cancer.org

Information on cancer incidence provided by the SC Central Cancer Registry, Office of Public Health Statistics and Information Services, SC Dept. of Health and Environmental Control.

Information on cancer mortality provided by the Division of Vital Records and the Division of Biostatistics, SC Dept. of Health and Environmental Control.

1/7/03

Table 1. Analysis of New Cancer Cases in Zip Code 29574, 1996-1999

Cancer Site	Observed No. of Cases	Expected No. of Cases	Observed/Expected	Chi-SquareTest*
Prostate	**56**	**36.7**	**1.53**	**10.16**
Lung/Bronchus	47	39.3	1.20	1.51
Colon/Rectum	30	29.1	1.03	0.03
Breast (Female)	28	39.6	0.71	3.40
Bladder	11	9.9	1.11	0.12
Melanoma	11	8.3	1.33	0.88
Non-Hodgkin's Lymphoma	10	8.1	1.23	0.43
Oral/Pharynx	9	7.1	1.26	0.48
Uterus	7	6.5	1.08	0.04
Kidney/Renal Pelvis	6	6.3	0.96	0.01
Pancreas	6	5.7	1.05	0.01
All Sites	278	248.8	1.12	3.42

Excludes in situ cases of cancer to allow for comparison.
Excludes cancer sites with less than 5 cases of cancer expected due to the unreliability of statistical tests based on small numbers.
*The Chi-Square statistical test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of cases is significantly different from the expected number of cases.
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Table 2. Analysis of Cancer Deaths in Zip Code 29574, 1996-2000

Cancer Site	Observed No. of Deaths	Expected No. of Deaths	Observed/Expected	Chi-SquareTest*
Lung/Bronchus	**59**	**43.0**	**1.37**	**5.97**
Colon/Rectum	16	14.9	1.08	0.09
Breast (Female)	14	11.7	1.20	0.46
Prostate	15	9.3	1.62	3.52
Unknown/Ill-Defined	11	9.1	1.21	0.39
Pancreas	9	8.2	1.10	0.07
Non-Hodgkin's Lymphoma	4	5.4	0.74	0.35
Leukemia	3	5.3	0.57	0.99
All Sites	**173**	**148.4**	**1.17**	**4.08**

Excludes cancer sites with less than 5 cancer deaths expected due to the unreliability of statistical tests based on small numbers.
*The Chi-Square statistical test allows us to determine if the difference between what is observed and what is expected is significant. If the value is greater than 3.84, then we are 95% confident that the observed number of deaths is signficantly different from the expected number of deaths.
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